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This report covers:

1. "The production gauge" (Aircraft)
2. "What kind of Soviet combat aircraft will the West have to fight" (Models)
3. "The planning of the Russian air command as it appears to author and his sources"
4. "How to keep them flying"
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It therefore thinks and acts "continentally." The Soviets have no intercontinental support points outside the continent with its Russian-Siberian-Chinese base. They are consequently unable to drive any wedge into the strategic unions of the West.

For these reasons, the state and people, and consequently their political and strategic ideas, contemplate a land war.

The Soviet army is ready to fight. It is much stronger than the West in numbers and in the hardness of its individual fighters. Its technology is modern. It is looking into the future.

The Russian strategy is to conquer land rapidly, in order that the people of that land may as soon as possible be used to strengthen the political system.

But without a strong air force, a land offensive would come to a halt. The enemy air-warfare potential might also be able to destructively attack the Russian heart-land, unless an air defense were ready for combat.

Korea gives the best example. The stronger U.N. air force does not permit the Asiatic land armies to obtain a victory, because air superiority is on the side of the West. The West however has not won command of the air, because its air force does not appear in full force, and political reasons do not permit extending air warfare to the sources of power of the real opponent.

When, however, will the Russian air force be so strong that it can quarantee decisive initial successes to its own army?

The production gauge.

There is talk of a production of 19,000 aircraft. The total potential is estimated at 60,000 aircraft. The reserve is supposed to amount to 25,000

aircraft. 7000, 8000, 10,000 fighters are supposed to defend the air over the Soviet Union.

However, little is known as to the actual state of affairs at the future front in the west, in Siberia and in the Far East. All these figures are but vague information, with which politicians and strategists can do but little.

Let us attempt to get to the bottom of matters.

The last war has already demonstrated, in Germany, that the production of aluminum is the decisive factor in the production of aircraft. "The resmelting process, born of necessity, could not prevent only a three-month stock of aluminum for engine crankcases being on hand in May of 1944." ("Europaische Beitraege fuer die Geschichte des Weltkriegs II - Luftkrieg" -- "European Contributions to the History of World War II - Air Warfare." See also the Library of Congress' "Quarterly Journal of Current Acquisitions," August 1949, The Von Rohden Collection). In the said year of 1944, the Germans produced 34,109 combat aircraft.

The aluminum production of the Soviet Union has up to the present time been estimated at 140,000 tons. Germany as long ago as the last war produced 186,000 tons of raw aluminum. We must therefore assume at least that much for Russia in the year 1950 and later. The air force has the greatest need of aluminum. It will scarcely want less than 70% for itself.

The strategic concept gives us the answer as to the aircraft into which this aluminum will go.

The Russians will have profited from the experience of the Germans. A weak air defense against the strategic offensive of an enemy strong in the air was the cause of the total defeat of the Germans. The percentage of pursuit craft, "destroyers'

(large, heavily-armed fighters) and night fighters in the Luftwaffe rose from 43% in the year 1939 to about 62% in 1942, 52% in 1943, and 66% in 1944. In the year 1944 however, the lack of aviation fuel crippled a large part of the pursuit craft. The Soviets will therefore build at least 60% of their combat craft as pursuit craft. In the course of a war, this percentage may even rise to 70%. The Russian army requires 25% for combined-operations aircraft. The Germans had also reached this percentage in 1944. And the German element has become a determining factor in the Russian war and production concepts.

Bombing aviation, with strategic-offensive objectives, has always been but little developed in the Russian air force. There is no reason at all to believe that thousands of heavy bombers are in production, still less ready for duty. Atom bomb attacks can however be successfully carried out by numerically weaker forces, provided total loss of the attacking craft is counted on. We scarcely need assume that more than 7% of the Russian production is for heavy bombers. Otherwise, their air defense and their combined-operations would lose in penetrating power. It is not however the habit of Russians to dilute their main ideology.

This therefore leaves 8% for transport aircraft. This is somewhat small, considering the large area of the Soviet Union. However, civil aviation will provide sufficient reinforcement.

Marine aircraft are of relatively small importance. For the greater part, air warfare above the sea can be carried out by army aircraft. This is shown by the fact that the greater part of marine aviation will in all probability (as with the Germans) be under the supreme command of the All-Russia Air Combat Forces.

We may figure on about 20% of the combat aircraft being for training and communications aircraft. They may be built to a large extent of other materials.

Thus we obtain the following picture of Russian production after approximately 1951:

Types	Percentage	Production	Tons of aluminum required	Remarks
Pursuit & fighter-bombers	60	8,500	39,000	Turbine aircraft having a gross weight of 6.5 tons require about 70% of this weight in aluminum. Aircraft of 20 to 61 tons require about 60% of their gross weight.
Light & medium bombers	25	3,520	42,000	
Heavy bombers	7	1,000	36,000	
Transports	8	1,130	13,000	
Totals:	100%	14,150	130,000	

Certainly, even this production figure is high, but it does not represent the highest production, such as would be required in wartime. On the other hand it would be fantastic to believe that the Soviets would be in a position to add only 14,000 aircraft annually to their combat air forces. Any soldier knows that a large part of these aircraft becomes lost by wear and tear. There is spoilage of material. There is injury and waste in production. Produced aircraft are for some reason not accepted, are damaged or entirely destroyed in their trial flights. Others become used for other purposes in other assignments, so are not utilized at the front. Transportation to the front-line groups causes additional losses. Therefore, looking at things as a whole, we must figure on about 60%. This is more or less the same thing in all air forces. It is probably higher in the Soviet Union.

However, of the 60% reaching the front, only 60% of them will be really ready for duty. It would carry us too far afield to depict all the friction in the tactical and technical commands, the ways in which the technical personnel works, and the lack of spare parts, which are never there when they are needed. We must add, to this, losses caused by the enemy and by operations - the "silent losses." Yes, we come to the conclusion that with turbine aircraft a still smaller percentage will be ready for duty. (The British had about 50% ready for duty, and this during scheduled maneuvers in the year 1951 in north Germany.)

Therefore the outcome of this annual production is as follows:

Types	Actual	Ready for duty	With the front-line groups
Pursuit & fighter-bombers	5100	3060	
Light & medium bombers	2110	1270	
Heavy bombers	600	360	
Transports	680	410	
	8490	5100	

Here again we are talking of aircraft which are actually ready for use against the enemy. That alone is the measure of an air force's value. For this reason, all the enormous figures relating to "moth-balled" aircraft have no significance to a practical soldier at the front. They cannot even be used at a "secondary front." A few flights of modern aircraft would only need to appear at such a place to sweep the sky clear.

If we add to the production of 5100 for the year 1951 some 400 aircraft of

earlier date, capable of use against an enemy, then we have a stock of around 5500 fairly modern aircraft. With such a stock, it is not possible to fight a war, neither a "Blitzkrieg" nor a years-long war of attrition. And in no event is it possible to fight an air war on all three fronts: in western Europe, in Siberia and in the Far East. We shall discuss this further.

Only in the year 1953 will Russian production have risen to such an extent that the Soviets will be able to contemplate entering an armed conflict with the West, and with superior forces.

We may consequently assume that the Soviets will at the end of 1952 have a theoretical actual stock of about 15,700 combat aircraft and transports ready for duty. But it is impossible that the total production of this year will be available to the front-line groups of the year 1953. Here again, it is the "silent losses," and the use of aircraft away from the front, in schools and in satellite countries which will decrease the available-for-duty aircraft by a good 25%. So considering the net number of aircraft ready for duty, it may be estimated that the Soviet Union will at the turn of the year 1952-1953 have about 11,800 aircraft ready for commitment.

The number of aircraft ready for commitment will then run something like this:

Types	Ready for duty	Actual number	With the front-line groups
Pursuit & fighter-bombers	7050	11,750	
Light & medium bombers	2950	4,920	
Heavy bombers	850	1,420	
Transports	950	1,580	
Totals:	11,800	19,670	

From the production point of view therefore, the year 1952 may be the last year of peace; actual war production however has already begun in 1950. Up to that year the men of the Soviet Union were able to compare their own ideas with those of the Germans (there are of course plenty of experts), and to evaluate these ideas, and to convert them into practice in research, development and designs. Airframes and engines have since then been better adapted to one another. Aircraft which had already been in flying groups before the year 1950, and which are still in part in such groups, will have no further value at the end of 1952, and will be replaced by other models right at that time. A large increase of production will however scarcely be possible before 1953.

What kind of Soviet combat aircraft will the West have to fight?

If we here and now examine the combat aircraft that are regarded as "first line" models by the air powers, then we obtain a really confusing picture. The uninformed lump all models together, and then regard the total thus obtained as a combat factor by which to evaluate the enemy. We have already seen how much

this idea is discounted in practice by front-line soldiers. Numerous models for front-line soldiers to fly is during wartime a great weakness. Prior to a war, however, it is necessary.

The German air force began its war with 17 models in production, of which 5 models were bombers and 2 were pursuit craft, including destroyers and night-fighters. In the year 1943, the Luftwaffe had 27 models in production, of which 7 models were bombers, and 12 were pursuit craft, including large heavily-armed craft and night-fighters. In the same year they built 1 model in 4 variants, 3 models in 3 variants, and 6 models in 2 variants. (In 1944, they even built 10 models in 2 variants apiece.)

From the events of the last air war, to which this confusion contributed to a considerable extent, come the following teachings:

1. The number of models may be relatively large up to a time two to three years prior to a planned war. During this time experience is gathered, and decisions for mass production are arrived at.

2. From that point of time onward, agreement must be reached for only two models apiece in the mass production of pursuit craft, light and medium bombers, heavy bombers, and transports. In these two years preparations must be made for starting mass production.

3. A large number of models, and a multiplicity of variants on top of this, hampers production, strategy, replacements, and above all the tactical command and the daily missions of front-line groups.

4. It is however impossible to spend too much money on research and development. The production of improved models must start right at the beginning of

the war; and after the first year these models must be available in comparable numbers for replacements.

The planning of the Russian Air Command appears to us to be the following:

Model	No. of Engines	1950	1951	1952	1953	1954	1955	1956	1957
La-11	1	———	———						
Yak-15	1	———	———						
MiG-9	2	———	———						
Mig-15	1		———	———	———	———	———		
La-17	1		———	———	———	———	———		
Yak-17	1		———	———	———	———	———		
MiG-22	1		———	———	———	———	———		
MG-13	2		———	———	———	———	———		
La-47	1		———	———	———	———	———		
Yak-21	1		———	———	———	———	———		
La-15	2		———	———	———	———	———		
La-15 bis	2		———	———	———	———	———		
P13 A	1				———	———	———	———	
MiG-19	1				———	———	———	———	
EF-128	1				———	———	———	———	
Yak-25	1				———	———	———	———	
Tu-2	2	———	———	———	———				
Pe-2,3	2	———	———	———	———				
Il-10	1	———	———	———	———				
La-11	1	see above.							
Tu-10	2		———	———	———	———			
Il-16	4			———	———	———	———		
Il-26	2			———	———	———	———		
Tu-71 (B-29)	4	———	———	———	———				
TuG-75	?					———	———	———	

Legend: ——— = the years in which it is assumed a model may be used in large numbers in groups. Because the technical performance and approximate combat value of these aircraft is known almost all over the

world, the corresponding data are omitted here. Only the most important models are listed.

We must assume that the Soviet Air Force Command will, out of the large number (16) of pursuit craft and fighter-bombers, in the first place select those models which are to be put into mass production in the future. These models should be started as early as 1951, and should reach full production in 1952-1953, if they are figuring on a war in 1953. In no case however is it feasible, during the war itself, to divide the fighters up into as many models as are given above. The consequences would lead only to defeat. The German Luftwaffe demonstrated this, when they increased their models and variants from year to year.

The models we know about today will be obsolete in the year 1955 at the latest. There may be remnants of them in the flying groups in the year 1956. The inevitable result is that models must currently be in development, so that they may be selected for mass production in the year 1954.

In no event will the coming war be a "Blitzkrieg." Four years are the least each side should count on. What is known, however, gives no clues for the years after 1955; because we know little about the pursuit craft and still less about the bombers.

It is self-evident that nobody can give the production figures accurately, nor predict which aircraft will be selected for mass production. However, it is possible to perceive some important clues to the equipment and strategy of the Red air force: These clues are:

1. A strong air defense.

2. The large number of turbo-fighters having a relatively short range (1300 km or 810 miles at the most).

3. The small number of multi-engine long-range fighters and escort fighters.

4. This allows us to deduce an increased fixed-location strategic defensive, and to deduce that there will not be pursuit and penetration far into enemy territory. If there should however be large production of two-engine fighters, then we must expect different strategy and tactics.

5. The choice for the mass production of pursuit or fighter craft has not yet been made. It appears to have already been made for light and medium bombers, as well as for strategic bombers. Here also there is a lack of new developments beyond the year 1954.

6. For the years 1951 and 1952, the Russian air force still has no mass defense force ready and no mass attack force ready. Depending upon the number of models and their relationship to production, these craft may be developed in the year 1953, or quite certainly in the year 1954.

A strategic offensive by a foreign coalition would during these years probably be stopped in the vicinity of Russian airfields. The Russians would have to construct a very large number of airfields in order to guard against all possible enemy attacks from the west, over the Pole, from India, Arabia, the Pacific, and from Japan.

The strategic air defense of Soviet Russia would therefore take place, in concentrated fashion, in the vicinity of the area to be protected itself.

The genuine combat aircraft of the Red air force appear to us to be weak. This may be explained in that a portion of the fighters gets assignments for ground support, and similarly a larger percentage of the light and medium

bombers is assigned to the same task and to the so-called "operative" mission, deep within the area of operations of the enemy army (railroads, roads, headquarters, parks, etc.). In spite of this, we can perceive a chink in the armor where the future is concerned, which weakness will however probably soon be repaired.

Apart from the anticipated dropping of atom bombs on the army's battle-field and in its area of operations, as well as some attempts to make atom bomb attacks on a few of the West's centers, the heavy bombers will be used mainly for "operative" attacks in support of the army and the small naval groups in the various seas. Nothing will be seen of a strategic mass offensive like the combined bomber offensive of the years 1943-1945. None of the prerequisites for this exist.

How to keep them flying?

This is the great Achilles' heel of the "Red Falcons."

Is there oil enough to keep such an air force going?

A glance at the world production of oil, and at its distribution between East and West, might at once answer a part of this question.

Year	World Production in tons, without Iran	The West's share	The East's share	Iran
1950	520 000 000	450 000 000	38 000 000	32 000 000
1951	582 000 000	505 000 000	42 000 000	35 000 000
1952	644 000 000	565 000 000	47 000 000	33 000 000
1953	727 000 000	632 000 000	53 000 000	36 000 000
1954	808 000 000	708 000 000	60 000 000	40 000 000

Note: A 12% increase is assumed for the years 1951-1954. Oil production in Iran will however first decrease, and then increase. The association of Iran with the West is now dubious. The East also will not fully utilize this oil region. There may in any case even be destruction of the oil plants in south Persia. Thus neither side will be able to count on use of the Persian oil wells.

If for the year 1953 we add on the collected reserves, of around 20 million tons, then the Soviet Union might have available for 1953 around 73,000,000 tons, and for the year 1954 over approximately 90,000,000 tons. Then war losses come in.

On the basis of strategic concepts, these millions of tons might be divided up as follows:

	Tons in 1953	Tons in 1954
Army 30%	21,900,000	27,000,000
Air Force 35%	25,500,000	31,500,000
Navy 15%	11,000,000	13,500,000
Civilian needs 20%	14,600,000	18,000,000
	73,000,000	90,000,000

The German army, with about 3800 combat planes and transports in use in May 1944, used about 6300 tons of aviation fuel daily. This amounts to about 2,300,000 tons annually. German industry could not guarantee this requirement in that year, after the loss of Roumania, Poland, and after systematic attacks on the hydrogenation plants by the Anglo-Americans. The German Air Force was rendered incapable of movement.

Present-day turbine aircraft require considerably more fuel.

The 7100 jet-engine fighters, if they were all on missions and flew for half an hour each day near the ground and for one hour at altitudes above 10,000 meters would require about: 25,000 tons

The 2950 light and medium bombers flying for two hours, usually at medium altitudes and also near the ground, would use about: 24,000 tons

The 830 heavy bombers, for four-hours flight at great altitudes, would require about: 10,000 tons

The 945 transports, with four hours flying time, require about: 8,000 tons

Total: 67,000 tons.

This means that the Red air force would have an annual requirement of approximately: 25,000,000 tons.

In addition, about 2,000,000 tons would be required for other air force purposes. Making a grand total of: 27,000,000 tons

If we assume that out of the 30,000,000 tons (using round figures, increased somewhat to correspond to the importance of the aerial combat forces) it would be possible to manufacture about 80% gas turbine fuel for the air force, then this would give us the amount of 24,000,000 tons of such fuel. The air force would however require the ordinary fuel for piston engines, for aircraft and ground service.

It follows from this that, from the purely mathematical point of view, the Red air force can not fly continuously to the extent indicated above. The weather, tactical influences and technical defects will probably not permit full utilization to the extent we have assumed. However we cannot count much on this decrease of utilization. There are, on the other hand, small reserves which may become available to the Russian command. On the other hand, however, still greater losses may occur, the magnitude and nature of which cannot now be foreseen.

It must finally be recognized that the Red air force, in the long run, will

in all probability be able to count on only half of the combat aircraft we have assumed to be ready for duty; that is, about 6000 machines will fly the specified amount.

We are not located in the center of the Soviet economy. The reserves and the production may be higher than we have assumed. The means the Russians may take to help themselves are of greater efficacy than those the West, with its expensive and complicated machines and methods, is able to avail itself of. The Russians may moreover aid themselves in many ways the West is unable to do.

Therefore, in order to avoid making an underestimate, we think it proper to assume the quantity of: 9000 combat aircraft ready for duty, which are able to fly daily.

This calculation will show that the Russian combat air force, after 1952-1953, and without increasing production, which is also possible, will have available the following combat aircraft ready for duty:

Pursuit & fighter bombers	5400
Light & medium bombers	2250
Heavy bombers	630
Transports	720
	9000

The possible losses.

During the last war the German Luftwaffe had, to offset its losses, a production surplus of:

			Combat aircraft ready for duty at the end of the year concerned	
1940	+	37.4%	1956	Without transport aircraft.
1941	-	11.6%	1462	
1942	+	14.4%	2074	
1943	+	7.0%	3243	
1944	+	5.3%	3888	

This indicates an underproduction as early as 1941, the time of the Russian war. In the following years, losses were little less than the production. It was the "land strategy" only that began the break-up of the German Luftwaffe; not its air warfare against Great Britain. Then the Luftwaffe was "finished off" by the Anglo-American strategic offensive; because the Luftwaffe had not reinforced its strategic-offensive part, its fighter aircraft, at the right time and to a sufficient extent.

The Russians know these facts. For these reasons they strengthen their fighters. But they will not be able to avoid losses; and neither will their enemy, who knows this no less exactly.

For this reason, the Russian production cannot be high enough. It will increase to the extent that aluminum and other materials and bottle-necks permit being accomplished in any way whatever. Their production will therefore be still higher than 14,150 combat aircraft, in order to make it possible to replace losses among the machines that are actually flying. The production may possibly reach an aluminum quantity of 176,000 tons and 19,000 aircraft, which would mean an annual increase of about 7000 combat aircraft. This would be an advantage, even though, through shortage of fuel, they were not able to commit all these aircraft

at once. They need only space to stockpile them in hidden places.

Modern air weapons, that go into combat with almost equal strength and quality (which will be the case here), must count upon losses of 50% of the committed aircraft (from 10% damage to total loss). Events in Korea give us no hard-and-fast experience to draw on, because in that case the air warfare is only a "token" one. But the U.N. air combat forces must have already felt that they are not fighting against a hopelessly outclassed enemy, such as the Germans were, whose losses in 1942 amounted to 86% of their production, to 93% in 1943, and to 95% in 1944.

The Soviets will do everything they can in order to get through the critical second year of a war with their aircraft production as little undisturbed as possible. If it is not possible for their enemy in that year to chop off the source of aircraft production, and to win air domination, then it will require years to make incapable of combat an air force such as the Soviets will build up.

As has already been recognized above, an annual production of 14,150 combat aircraft will product 5100 aircraft (in flying groups) ready for duty. If the pre-war status of 11,800 aircraft (see above) becomes decreased 50% in the course of the first year through losses, then the 5100 combat aircraft which get to the front ready to fight, out of the 14,150 production, will no longer replace the losses. The production must therefore be still higher, and be increased to at least 19,000, even though these aircraft, because of fuel shortage, do not all get to the front right away for flying missions.

The Soviets will expect their enemy to strive, even in the first year of war, to strike in such a way that the necessary continuous, even though not large,

increase of combat aircraft ready for duty becomes impossible.

Will it be possible to achieve this? Let others answer that question. It does not appear to us that this hope has foundations for the years 1952-1953.

The strategic organization.

That gigantic power, the Soviet Union, may probably be regarded as a single unit. But its western region, its Siberian center, and its Far East are so different and so remote from one another, that the direction of strategy must of course be under a unified supreme command.

Its total fighting forces, from raw material requirements to the assignment of tactical units, must be under autonomous control in each of these three regions. If one of these parts (or even two) becomes lost then the others (or even only one of them) will fight on. Their enemy is consequently not fighting against one country, but against three. The strategy on both sides will have to take this into consideration. The strength of the attacking air force must be still higher than it ever was in the last world war.

The Russian strategic lines of thought will probably be a formation of:

Air defense commandos for their strategic defensive;

and of:

Air armies for the support of their land army and their navy.

These will have their own transports.

On the other hand, the Russians' weak strategic attack air force is also an instrument of their supreme command. It operates with single atom bombs for general warfare objectives. In certain cases it may be made available temporarily, for a certain time, at the main front in the west or in the far east. Its bases change, depending on the requirements of the general strategic

situation. Airfields of the A.D.D. in Novaja Zemlya give no indication of the use contemplated for them. The Tu-71 (B-29) is no longer a modern machine for strategic warfare over great distances. This machine is also steered in Russia by remote-controlled mechanisms. The remote control however is still under the disadvantage of considerable defects in the east and west.

The strategic defense.

The Soviets expect that their attacks will be answered by a Western Alliance air offensive from England, southwest France, Spain, North Africa, Arabia, India, from the Pacific and from Japan, and possibly also from over the North Pole. The main center of operations may vary, but would in the first place be in the west.

We estimate that the Soviets will be able to concentrate in 1953, for use in their strategic air defensive:

About 4800 fighters in the west,

About 2000 fighters in Siberia,

About 2000 fighters in the Far East.

Of these there would be ready for commitment:

About 2880 in the west,

About 1200 in Siberia,

About 1200 in the Far East.

As a result of the fuel shortage, perhaps only 75% of these aircraft would be able to fly continuously; that is, about 4000 machines.

These figures derived from front-line practice would have some significance if the air space from the Baltic Sea and Black Sea to the Far East coast had to be

defended. The satellites would not be able to turn this weakness into any kind of strength.

This multi-front warfare however weakens a possible attacker. Such an attacker would obtain considerable success in one aerial warfare area only if he had the ability to concentrate, in the decisive area at the right time, more force than the defender could concentrate. This is a matter of intelligent guidance of the strategy. It can be done, if one remains calm and does not imagine oneself to be tremendously superior. Any arrogent feeling is an evil.

Europe remains the decisive area. Here politics, ideology and strategy see the quickest possible success. Here we may expect the mass of the Red Air Force. Here, however, is in the long run a weak area of the West, although it is its "heart-land." Here is the vacuum, which is bound to suck in any opponent filled with enmity. Even our modern times are unable to deprive the old basic laws of strategy of their force. Without German aerial fighting power it will not be possible to win through. No matter how weak it may be, that aerial power will nevertheless demonstrate the German will for a common defense of the European home and for supporting the common European land forces. That is however more important than a strong German "air fleet."

As to the Siberian area, everybody is talking about the "Arctic Project:" aerial warfare over the North Pole. However, the distances from North Siberia to Iceland, Canada, Alaska and the United States still remain about 3000 to 5000 kilometers (1860 to 3110 miles). And from Alaska and Canada to Novo-Sibirsk and Stalinsk is still a flight of more than 6000 to 9000 kilometers (3730 to 5590 miles). Even nowadays that would be individual accomplishments. In spite of radar technology, finding targets is influenced by accidents which unfavorably

affect the certainty of finding the target.

The Russians will of course activate their polar defense. But where will they find a fighter force strong enough to catch all enemy bombers before they reach their target?

We may consequently expect decisive air operations in this area and also in the Far East at the beginning of a war, probably as the result of "large-scale planning." But such operations will not have any quickly decisive effect on the general warfare. Both sides ought to recognize this, and not give too free rein to their fantasies.

The radar network of both sides will probably function to a certain extent. They will seek for one another; they will evade one another. Maybe they will encounter their enemy within seconds. The probability of being shot down is, however, small in this area with its weak forces. And in addition, if an atom bomb should really once score a hit, the war is still not at an end. Countries covering great areas, and having forces still unused, do not give up after a few atom bombs. Japan is a poor comparison in this respect: it was involved in a hopeless conflict, was nearing the end of its resources, and its homeland is only a fraction of the area occupied by Siberia, West Russia, and also by the U.S.A. and Canada.

Moreover, many air powers again have the illusion that bombers can be just as fast as fighters. The Do-17 of the Germans, and then their Ju-88, have already demonstrated the impracticability of this technical hope. We should avoid being deceived, through overweening pride, by such fantasies. Nevertheless, the bomber is now fast enough to be able to evade its enemy. Those who cannot come in from all sides and stay on its heels for long distances, and take off from a

succession of airfields composing a wide-spread network, will seldom be able to shoot down a bomber in night and mist. The best that can be done is to make the bomber continuously change its course, and then turn right around. "Wonder weapons" and "wonder devices" are in everyone's mouth. They require years to be brought to perfection. It will, even nowadays, be many years before we obtain "inventions that revolutionize everything."

The difficult technical accomplishments of production, the technical ground personnel, and long years of training for the flying crews are the things that after long struggles bring success - also in strategic aerial warfare. The Russians are in no way inferior in these respects.

Only fuel forms a bottleneck. Will they not be able to find means to put off for as long as possible the running dry of this stream of fuel? That stream of fuel will sometime come to an end; but perhaps so late that the other side will nevertheless have to turn again to political means to avoid a years-long war of attrition. The gigantic coalitions of the present day, with their powerful sources of replacements, no longer have a choice between unconditional victory and unconditional surrender: they have only the choice of military and political adjustment or compromise.

The tendency on land is also in this direction.

The air armies.

Their strength can scarcely exceed 10 air armies of the kind of mixed groups mentioned in the foregoing. The majority of them will be found in the west, where the mass of the army will attack. Their subdivision may run as follows:

300 fighters

500 light and medium bombers

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in each air [illegible]n. , a corresponding number of transports, about 50.

The number of aircraft ready for commitment becomes decreased by the familiar 40%. But in this case fuel will not be economized, because the army must drive forward: that is the essential thing to the Russian mind.

The details of this however belong to land strategy, and must be dealt with elsewhere.

Summary

This is left to those who have military experience and industrial knowledge as well. Then, the editor may have the final word.